REMARKS

Reconsideration of the present application is respectfully requested.

A. Status of the Claims

Claims 1-13 are presented for continued prosecution. Claim amendments have not been made at this time.

B. The Office Action

The Examiner maintained the prior art rejections based on the combinations of Anderson (U.S. 4,316,379), Kergen (U.S. 5,477,723), and Cao (U.S. 6,769,280).

In the "Response to Arguments" section of the Office Action, the Examiner replied to Applicants' prior arguments stating that the regulation logic described in col. 4, line 61 to col. 5, line 9 of Kergen controls the downholder in the manner claimed in the present application.

Applicants respectfully disagree with the Examiner's reading of Kergen. The following is a detailed explanation of some of the differences between the cited section of Kergen and the claimed invention.

1. The claimed predetermined thickness trend vs. the regulation logic of Kergen

The downholder force in the present invention is controlled using a predetermined thickness trend of the edge of the blank (or a critical value derived therefrom). By definition, the predetermined trend is determined before the start of the actual deep drawing process. When deep drawing is subsequently performed, the blank holding force is adapted according to the already known, predetermined thickness trend that has been previously programmed into the apparatus. This allows the downholder force to be advantageously minimized (page 2, line 30 to page 3, line 7 of the present application).

The regulation logic and method of controlling the downholder described in col. 4, line 61 to col. 5, line 9 of Kergen does not employ the claimed predetermined thickness trend (or critical value derived therefrom).

The apparatus of Kergen includes a displacement sensor that measures the distance between the die and the blankholder (col. 5, lines 1-3). Based on this distance measurement, a processor generates a pressure command signal C according to regulation logic (col. 5, lines 5-9). The pressure command signal C is determined by performing mathematical computations and/or "logic" tests (col. 4, lines 35-38). The sensor of Kergen continuously measures the distance between the die and the blankholder, and continuous pressure command signals C are thereby generated in order to constantly regulate the blankholder force at all times during deep drawing (col. 4, lines 12-17).

In short summary, Kergen uses a sensor to measure the distance between the die and the blankholder. Any increase in distance indicates the initial formation of crinkles according to Kergen (col. 5, lines 3-5). After an increase in distance is sensed by the sensor, Kergen adapts the blankholder force (using the aforementioned regulation logic and pressure command signal C).

This is a critical difference between the claimed invention and Kergen. The claimed invention employs a predetermined trend to control the downholder force. The predetermined trend is already known prior to deep drawing, and is preprogrammed into the apparatus so that deep drawing can be conducted according to the already known predetermined trend. In contrast, after deep drawing begins, Kergen employs a sensor to detect increases in distance between the die and blankholder, and Kergen thereafter adapts the downholder force accordingly. Thus, the apparatus of the claimed invention controls the downholder using a previously known, preprogrammed and predetermined trend, while the apparatus of Kergen controls the downholder in "real time", by adapting the downholder after a sensor measures the die/blankholder distance during deep drawing.

Applicants therefore respectfully submit that claims 1, 8 and 13 are patentable over the combined teachings of Kergen and Anderson and the knowledge of those in the art.

2. The disadvantages of Kergen compared to the claimed invention

Without detracting from the comments in section 1 above, Applicants would like to explain some of the disadvantages of the apparatus of Kergen compared to the present invention. This explanation is being offered to show that the claimed invention is not obvious based on the combined teachings of the cited references and the knowledge of those in the art.

As discussed above, Kergen explains that an increase in distance between the die and the blankholder indicates the initial formation of crinkles (col. 5, lines 3-5). Kergen does not take into account that the distance increase can be partly caused by factors other than crinkle formation (e.g. that the material in the blank edge must be accommodated on a surface with increasingly smaller diameter as deep drawing continues, see page 2, line 30 to page 3, line 7 of the present application). Therefore, according to Kergen, the downholder force might sometimes be larger than necessary. The apparatus of the claimed invention that employs the predetermined thickness trend does not suffer from this drawback.

C. Claims 5 and 6

Claims 5 and 6 had been rejected based on the combination of Anderson, Kergen and Cao.

Claims 5 and 6 ultimately depend upon claim 1, and therefore include the limitations of claim 1. Applicants therefore respectfully submit that claims 5 and 6 are patentable over the combination of Anderson, Kergen and Cao and the knowledge of those in the art.

D. Fees

This Response is being filed within the shortened statutory period for reply. No fee is believed to be due. If, on the other hand, it is determined that fees are due or any overpayment has been made, the Assistant Commissioner is hereby authorized to debit or credit such sum to Deposit Account No. 02-2275. Pursuant to 37 C.F.R. 1.136(a)(3), please treat this and any concurrent or future reply in this application that requires a petition for an extension of time for its timely submission as incorporating a petition for extension of time for the appropriate length of time. The fee associated therewith is to be charged to Deposit Account No. 02-2275.

E. Conclusion

In view of the arguments presented, it is respectfully submitted that each and every one of the matters raised by the Examiner has been addressed by the present amendment and that the present application is now in condition for allowance.

An early and favorable action on the merits is earnestly solicited.

Respectfully submitted,

LUCAS & MERCANTI, LLP

By: _____
Timothy D. Meade
Registration No. 55,449

LUCAS & MERCANTI, LLP
475 Park Avenue South, 15th Floor
New York, NY 10016
Phone: 212-661-8000
Fax: 212-661-8002

CERTIFICATE OF ELECTRONIC FILING
I hereby certify that this document is being electronically transmitted to the Commissioner for Patents via EFS-Web on September 26, 2007.

LUCAS & MERCANTI, LLP

BY: _____
Timothy D. Meade